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## BAN ON SMOKING IN INDUSTRY

*To the Editor:* Pacific Northwest Bell is a Seattle-based telephone company with over 15,000 employees. On July 15, 1985, its management announced that a new smoking policy would go into effect on October 15 of that year. The new policy was so straightforward that its essence was contained in one terse sentence: "To protect the health of Pacific Northwest Bell employees there will be no smoking in company facilities."

The ban on smoking has now been in effect for six months, and the results are impressive. Although the company initially received some complaints about the new policy, not a single employee has left because of it. Enforcement of the ban has not been a problem even though the company has over 800 offices in three states. There have been no lawsuits against the company, and the two unions that represent the workers have supported the measure. There are currently no plans to modify the ban in any way.

The results at this company will almost certainly encourage other large companies to consider such a ban. If widely adopted, these policies might have a dramatic effect on the nation's smoking habits. Theoretically, they would encourage people to quit smoking by increasing the social pressure against it and by restricting the time available for it. Although such an outcome has not yet been documented, the results at Pacific Northwest Bell have been encouraging. At the same time that it announced the smoking ban, the company also announced a program for reimbursing employees for participating in smoking-cessation programs. In the first six months of this program, 1044 employees requested reimbursement for the cost of cessation programs. On the basis of previous company surveys, this represents 25 percent of all company smokers. This contrasts sharply with the results of the company's previous efforts to encourage employees to participate in smoking-cessation programs. During the 26 months before the smoking ban was announced, employees had the opportunity to participate in cessation programs sponsored by the American Cancer Society. These programs, which were free and conducted during work hours, were poorly attended. During the entire 26-month period that they were offered, only 331 employees signed up for them.

If policies that ban smoking do encourage employees to quit, they promise handsome dividends to managers who are concerned with "the bottom line." Studies have consistently shown that employing smokers costs a company substantially more than employing non-smokers. Kristein<sup>1</sup> found that it costs an additional \$336 to \$601 per year to employ a smoker. Weis<sup>2</sup> reported that the cost can be as high as \$4,700.

Physicians should be particularly interested in the smoking policies of hospitals. Although the smoking restrictions in most hospitals involve only segregation of smokers or prohibition of the sale of cigarettes,<sup>3</sup> two hospitals — the Public Health Service Indian Hospital on the Hopi Reservation<sup>4</sup> and the Group Health Cooperative Hospital of Puget Sound<sup>5</sup> — have shown that banning smoking in hospitals is possible. It is now time for all hospitals to consider such a ban. Smoking is the greatest cause of premature death and disability in the United States,<sup>6</sup> and it would be ironic if health care institutions let the general business community take the lead in banning smoking in the work place.

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*To the Editor:* Recently, concern has been raised over the health implications of the increasing use of snuff, especially by children and adolescents.<sup>1</sup> Snuff contains amounts of carcinogenic nitrosamines that exceed by orders of magnitude the nitrosamine content of other consumer products.<sup>2,3</sup>

I examined mortality statistics in the United States to determine whether there has been any rise in the rate of cancers of the mouth. The deaths from tongue cancer in white males from 1950 through 1982 were tabulated from the death-certificate tapes of the National Center for Health Statistics. Deaths from tongue cancer for three decades and for 1980 through 1982 are presented in Table 1, according to the ages of the decedents. Mean annual mortality ( $\pm$ SE) was calculated with use of data on the number of white males of the corresponding ages in the United States in the median year of each period, as obtained from Census estimates.

The mortality from tongue cancer for the 10-to-29 age group rose more than twofold during the period examined. This rise was statistically significant by a test for trend on a log-linear model ( $P = 0.004$ ). Because of the low number of deaths from tongue cancer in that age group, it is difficult to estimate when the increase began, but graphic analysis<sup>4</sup> indicated that it may have begun in about 1974. No increases were seen among older men; a change in the 30-to-34 age group in 1980 to 1982 was not statistically significant. The observed increase in mortality from tongue cancer is consistent with an increased use of snuff by children and adolescents. The latency period observed for the development of cancer will be shortest among the youngest group of patients.

The rates for cancer at other sites in the mouth were also examined, but no upward trend in mortality was observed in the same age groups. The other sites in the mouth that would be expected to be affected by snuff are the lips, cheeks, and gums. The gums and cheeks are often not listed separately on death certificates and probably are often classified as "mouth, not otherwise specified." Lip cancer predominantly affects the vermilion border, and most cases are associated with exposure to sunlight. Therefore, the fact that no increased rate was found in mouth subsites other than the tongue is not surprising. Cancer of the tongue has long been treated as a distinct entity in medical literature, and it is more likely to be correctly specified on death records.

These preliminary data emphasize the importance of close medical observation of young users of snuff. The use of this product by children and adolescents should be strongly discouraged. Cancer registries in areas in which there is a great deal of snuff use should observe the incidence of all forms of mouth cancer.

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Table 1. Mortality Rates from Tongue Cancer among White Males in the United States.

AGE GROUP	YEARS			
	1950-1959	1960-1969	1970-1979	1980-1982
<i>N</i>	mean ( $\pm$ SE) mortality $\times 10^4$ (no. of deaths)			
10-29	7.7 $\pm$ 1.9 (16)	9.6 $\pm$ 1.9 (26)	12.6 $\pm$ 4.2 (43)	18.4 $\pm$ 4.2 (19)
30-34	48 $\pm$ 9 (26)	51 $\pm$ 10 (25)	47 $\pm$ 9 (29)	58 $\pm$ 16 (14)
35-39	119 $\pm$ 15 (62)	112 $\pm$ 15 (59)	125 $\pm$ 16 (63)	134 $\pm$ 27 (25)

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### EXTRACORPOREAL SHOCK-WAVE LITHOTRIPSY IN A PATIENT WITH MILD HEMOPHILIA

*To the Editor:* As Mulley states in his editorial (March 27 issue),<sup>1</sup> extracorporeal shock-wave lithotripsy is becoming the technique of choice for treatment of renoureteral lithiasis. Even though renal parenchymal damage occurs in all cases, renal subcapsular hematomas are the only major complications and can be treated conservatively.<sup>2-4</sup>

We recently treated a 68-year-old man for hypovolemic shock after extracorporeal shock-wave lithotripsy. He had a history of chronic obstructive pulmonary disease and laryngectomy for a benign vocal-cord tumor nine years before, with severe postoperative bleeding. He was seen for abdominal pain, lumbar hematoma, and weakness eight days after undergoing lithotripsy in another hospital because of lithiasis in the left renal pelvis. Preoperative study had been normal but did not include determination of the partial thromboplastin time; the procedure was carried out under epidural anesthesia and was unremarkable.<sup>5</sup> The patient was discharged 72 hours later in spite of hematuria and abdominal pain, which were considered to be "normal" after lithotripsy. On the eighth day he came to our hospital because of progressive deterioration.

He presented with hypotension and oliguria, which were treated by transfusion and infusion of fluids. Abdominal radiologic and echographic study showed a large extracapsular perirenal hematoma with extension into the retroperitoneum. Conservative treatment was carried out, with improvement. Progressive reabsorption of the hematoma was observed. The partial thromboplastin time was 10 to 15 seconds over that of control, and factor VIII was 25 percent, suggesting hemophilia. During the hospital stay, he had nosocomial pneumonia with respiratory failure that necessitated mechanical ventilation, and a urinary tract infection. The patient was discharged 46 days later with normal renal function.

Since the work of Chaussy et al.,<sup>6</sup> the indications for shock-wave lithotripsy have been expanded because of the low incidence of complications. In a recent series of 15 patients treated with lithotripsy, 4 (27 percent) had subcapsular hematomas that were detected by various techniques of renal imaging.<sup>7</sup> Our case of extracapsular hematoma occurred in a patient with mild hemophilia not detected preoperatively. We believe that extracorporeal shock-wave lithotripsy must still be considered a major intervention.

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### IN VITRO AND IN VIVO RESULTS SUGGESTING THAT ANTI-SPOROZOITE ANTIBODIES DO NOT TOTALLY BLOCK *PLASMODIUM FALCIPARUM* SPOROZOITE INFECTIVITY

*To the Editor:* We have reported that a mouse monoclonal antibody directed against the circumsporozoite antigen and serum of mice immunized with recombinant and synthetic circumsporozoite peptides strongly inhibit the entry and development of *Plasmodium falciparum* sporozoites in hepatocyte culture.<sup>1</sup> Nevertheless, even though this inhibitory activity is often pronounced in culture, it is very rarely complete.

Since it can be argued that in vitro results are often of questionable relevance to an in vivo situation, we attempted to assess the extent of correlation between our in vitro results and observations made in patients in endemic areas. To examine this relationship, we collected serum from three persons living in three holoendemic areas in West Africa (Cameroon, Congo, and Mali). The samples had anti-sporozoite antibody titers that were the highest observed among samples from several hundred subjects studied thus far. The titers, directed against the sporozoite surface as determined by reactivity with "wet" preparations in indirect fluorescence assay,<sup>2</sup> ranged from 1:50,000 to 1:100,000, which is as high as or higher than corresponding titers of adults receiving as many as three infective bites per day (Druihe P, et al.: unpublished data) and approximately 10 times higher than titers of mice with a high response to artificial peptides with Freund's complete adjuvant.

The subjects' serum samples were tested for their ability to block entry and inhibit development of *P. falciparum* sporozoites in a human hepatocyte culture system<sup>3,4</sup> and under the technical conditions described elsewhere.<sup>1</sup> Despite the high level of sporozoite surface-specific reactivity, the inhibitory activity of these samples in vitro was only 82 to 88 percent, indicating that 12 to 18 percent of the parasites in an inoculum were unaffected by the antibody.

The presence of *P. falciparum* ring forms in blood films of one of the subjects at the time that serum was obtained demonstrates that some sporozoites are able to evade the protective action of naturally acquired antibodies in vivo as well as in vitro, even when these antibodies are present at high levels. Therefore, these specific antibodies do not consistently protect against disease determined by invasion and multiplication of parasites in erythrocytes.

Antibodies elicited in humans by synthetic or recombinant peptides may be more effective than those produced in mice. Whether total protection will be achieved by vaccination with these preparations, in contrast to the incomplete protection observed under natural conditions of immunization, must await vaccine trials in humans. However, our results do suggest that an antigen or antigens specific to a single stage of the parasite may be inadequate as a vaccine designed for complete prophylaxis.

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